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| 10/753,446  | 01/09/2004  | Kevin Mlazgar        | PAT 2239-2                       | 7910                        |
| 26123 7590 09/18/2007<br>BORDEN LADNER GERVAIS LLP<br>Anne Kinsman<br>WORLD EXCHANGE PLAZA<br>100 QUEEN STREET SUITE 1100<br>OTTAWA, ON K1P 1J9<br>CANADA |             |                      | EXAMINER<br>RUTKOWSKI, JEFFREY M |                             |
|   |             |                      | ART UNIT<br>2616                 | PAPER NUMBER                |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

Application No.

10/753,446

Applicant(s)

MLAZGAR ET AL.

Examiner

Jeffrey M. Rutkowski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to because figures 4 and 6 are irreproducible. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Objections*

1. **Claims 8-16** are objected to because of the following informalities: the claims recite a "network user interface" in the preamble. The parent **claim 7** only recites a "data network interface". Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 15-16** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims recite the limitation of a "parallel clock" in the third line of each claim. There is insufficient antecedent basis for the "parallel clock" limitation in the claim since there is no previous recitation on the arrangement of the "plurality of interface devices".

***Claim Rejections - 35 USC § 101***

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

- Claims 17-22** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The detailed description does not disclose what is categorized as machine-readable medium. Therefore, machine-readable medium could include any medium including non-statutory signals [**Specification, 0041**]. Additionally, under the Interim Guidelines the "machine readable medium" must be "computer readable medium".

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459

(1966), that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. **Claims 1-2, 5, 17-18, 21** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Huscroft et al. (US Pat 5,568,486), hereinafter referred to as Huscroft in view of Giorgetta et al.

(US Pat 7,035,292), hereinafter referred to as Giorgetta.

8. For **claims 1 and 17**, Huscroft teaches a method of interfacing between an asynchronous

stream of cells and a synchronous stream of frames by mapping a synchronous stream

contiguously and sequentially onto the payload portion of a frame. An incoming stream of data

is transformed into an asynchronous stream of cells by performing cell synchronization,

overhead processing and monitoring of incoming frames [**col. 2 lines 45-52**]. Overhead ports are

used to extract or insert overhead information from/into a SONET frame [**col. 10 line 43- col. 12**

**line 2]** (interfacing between said time-multiplexed data streams of overhead bytes and said

stream of data based on said minimum interface rate such that an operation is performed at a

frequency that is at least equal to said minimum interface rate). Huscroft does not teach how a

minimum interface rate is determined. Giorgetta teaches the minimum interface rate

determination absent from the teachings of Huscroft by disclosing a method for organizing frame

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structures **[abstract]**. Synchronization between a transmitter and receiver is based upon the number, position (spacing) and content of the bits in the header section **[abstract]**. In addition, the link rate is dependent upon the number of bits chosen for the link and the data rate **[col. 12 line 45]** (determining a minimum interface rate based on a minimum overhead spacing between any two consecutive overhead bytes in said given data path and on a data rate of said stream of data).

9. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use Giorgetta's method of determining the interface rate in Huscroft's invention to prevent clock drift between the transmitter and the receiver.

10. For **claims 2 and 18**, the combination of Huscroft and Giorgetta teach everything in parent **claims 1 and 17, respectively**. Huscroft also teaches a transmit overhead insert port 50 inserts transport overhead (TOH) from a data stream of transport data received serially at 5.184 Mbit/sec (transmitting to an external device said overhead bytes in a next available timeslot within a selected timeslot sequence). A Transmit Transport Overhead Frame Position (TTOFP) signal is used to locate individual transport overhead bits in the transport overhead data stream **[col. 10 line 66 to col. 11 line 8 and figure 5]** (signalling to said external device transmission in step b1 ) of said overhead bytes in said next available timeslot).

11. For **claims 5 and 21**, the combination of Huscroft and Giorgetta teach everything in parent **claims 1 and 17, respectively**. Huscroft teaches the use of synchronous communications **[figure 2]**. Newton's Telecom Dictionary 20<sup>th</sup> Edition defines synchronous as a condition that occurs when two events happen in a specific time relationship with each other and both are under

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the control of a master clock (wherein said frequency of operation is synchronized for a single clock domain).

12. **Claims 3-4 and 19-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft as modified by Giorgetta as applied to **claims 1 and 17 respectively** above, and further in view of Akaike et al. (US Pat 7,139,286), hereinafter referred to as Akaike.

13. For **claims 3 and 19**, the teachings of Huscroft and Giorgetta teach everything in parent **claims 1 and 17, respectively**. Huscroft does not teach requesting a overhead byte or receiving an indication of validity. Akaike teaches the request of an overhead byte and the receiving an indication of validity limitations absent from the teachings of Huscroft by disclosing a POH framing pulse (TPOHFP) is generated to an external device in response to a J1 byte request pulse [**col. 6 lines 50-55**] (requesting said overhead byte from an external device in a next available timeslot within a selected timeslot sequence). An overhead valid signal (ROHAV) is also shared between two devices [**col. 8 lines 55-60**] (if issued from said external device, receiving said overhead byte along said stream of data and receiving an indication of validity of said overhead byte received for insertion from said external device).

14. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a TPOHP signal in Huscroft's invention to allow for frame synchronization. It also would have been obvious to a person of ordinary skill in the art at the time of the invention to use a ROHAV signal in Huscroft's invention as a check to ensure the frame is properly synchronized.

15. For **claims 4 and 20**, the teachings of Huscroft and Giorgetta teach everything in parent **claims 2 and 17, respectively**. The rejection of **claim 2** addresses extraction operation

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limitations (wherein if said operation is selectively determined to be extraction, said operation includes: b1) transmitting to an external device said overhead bytes in a next available timeslot within a selected timeslot sequence; and b2) signalling to said external device transmission in step b1 ) of said overhead bytes in said next available timeslot). The rejection of **claim 3** addresses the insertion limitations and provides the motivation to combine (wherein if said operation is selectively determined to be insertion, said operation includes: b1) requesting said overhead byte from said external device in a next available timeslot within a selected timeslot sequence; and b2) if issued from said external device, receiving said overhead byte along said data stream of data and receiving an indication of validity of said overhead byte received for insertion from said external device).

16. **Claims 6 and 22** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft as modified by Giorgetta as applied to **claims 1 and 17** above, and further in view of VanDervort (US Pat 5,764,626).

17. For **claims 6 and 22**, the teachings of Huscroft and Giorgetta teach everything in parent **claims 1 and 17, respectively**. Huscroft does not teach delaying an operation via pipelining. VanDervort teaches the delaying of an operation via pipelining absent from the teachings of Huscroft by disclosing the storage of cells in a pipelining First-In First-Out (FIFO) buffer until an appropriate time arrives for transmission [**col. 17 lines 60-67**] (further including a step of delaying said operation in step b) for a number of clock cycles to accommodate for any external latency through use of pipelining stages).



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18. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use pipelining to delay an operation in Huscroft's invention to ensure network synchronism is not disturbed.

19. **Claims 7-11 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft in view of Venkataraman ("Designing SONET/ATM Layer Processing ASICs Using Embedded Approach").

20. For **claim 7**, Huscroft teaches a network interface device with an overhead processing unit for path **28,44**, line **26,48** and section **22,24** overhead processing (an overhead processing unit for processing said overhead data bytes and for determining a minimum interface rate based on a minimum overhead spacing between any two consecutive overhead bytes in said given data path and on a data rate of said stream of data). The network interface device also has extraction and insertion interface (an extraction interface for transmitting to an external device said overhead bytes in a next available timeslot within a selected timeslot; an insertion interface for requesting said overhead byte from an external device in a next available timeslot within a selected timeslot sequence, and for receiving said overhead byte along said stream of data, and for receiving an indication of validity of said overhead byte received from said external device; wherein said interface device maintains a frequency of operation for said extraction interface and said insertion interface that is at least equal to said minimum interface rate). Huscroft does not teach the components are contained in a single processing unit. Venkataraman teaches the single processing unit limitation absent from the teachings of Huscroft by disclosing a SONET processing system implemented in an embedded multiprocessor System on a Chip (SoC) design [section 2, paragraph 1].

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21. Since Venkataraman teaches a SONET processing system can be implemented in a SoC design, it would have been obvious to a person of ordinary skill in the art at the time of the invention to implement the network interface device in Huscroft's invention in a single unit to enhance the flexibility of the interface device.

22. For **claims 8 and 13**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. Huscroft's network interface device includes FIFO buffers **32,40** (claim 8: further comprising a storage device for buffering bursts of data streams arriving at either said insertion interface or said extraction interface; claim 13: wherein said data network interface device provides a minimum amount of storage to absorb a data burst of said stream of data in either extraction mode or insertion mode).

23. For **claims 9 and 10**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. Huscroft teaches a SONET frame contains path and transport overhead bytes **[figure 2]** (claim 9: wherein said overhead byte is a path overhead (POH) byte; claim 10: wherein said overhead byte is a transport overhead (TOH) byte in a Synchronous Optical Network (SONET) system).

24. For **claim 11**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. Huscroft's network device is capable of decoupling section overhead bytes since the device makes use of transmit and receive section overhead processors **22,24** (wherein said overhead byte is a section overhead (SOH) byte in a Synchronous Digital Hierarchy (SDH) system).

25. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft as modified by Venkataraman as applied to claim 7 above, and further in view of VanDervort.

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26. For **claim 12**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. Huscroft does not teach the use of pipelining. VanDervort teaches the pipelining limitation absent from the teachings of Huscroft by disclosing the storage of cells in a pipelining First-In First-Out (FIFO) buffer until an appropriate time arrives for transmission [col. 17 lines 60-67] (wherein said data network interface device provides pipelining stages that models any external device latency by an equivalent number of clock cycles to align receipt of said overhead byte with said indication of validity transmitted from said external device to said insertion interface).

27. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use pipelining to delay an operation in Huscroft's invention to ensure network synchronism is not disturbed.

28. **Claim 14** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft as modified by Venkataraman as applied to **claim 7** above, and further in view of Parruck et al. (US Pat 7,139,271), hereinafter referred to as Parruck.

29. For **claim 14**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. Huscroft does not teach the use of a calendar. Parruck teaches the calendar limitation absent from the teachings of Huscroft by disclosing the use of a port calendar [figure 24] (wherein said data network interface device includes a programmable calendar for dividing and assigning a portion of a total data rate of said data network interface device to a specific stream of data).

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30. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use a calendar in Huscroft's invention to determine which output port needs to be serviced.

31. **Claim 15** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft as modified by Venkataraman as applied to **claim 7** above, and further in view of Akaike.

32. For **claim 15**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. The teachings from the rejection of **claims 5 and 21** discuss the use of synchronization. Huscroft does not teach the network interface device is a plurality of devices. Akaike teaches the more than one network interface device limitation absent from the teachings of Huscroft by disclosing the use of parallel POH processors **62** in an interface system **[figure 9]** (wherein said network interface device is a plurality of interface devices for decoupling multiple channels, and wherein each parallel clock of said plurality of interface devices is synchronized for a single clock domain).

33. It would have been obvious to a person of ordinary skill in the art at the time of the invention to use parallel network interface devices in Huscroft's invention to service more than one channel at once.

34. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Huscroft as modified by Venkataraman as applied to **claim 7** above, and further in view of Robertson et al. (US Pat 7,027,447), hereinafter referred to as Robertson and Akaike.

35. For **claim 16**, the combination of Huscroft and Venkataraman teach everything in parent **claim 7**. The rejection of **claim 15** discusses the use of multiple interface devices and provides the motivation to combine. Huscroft does not teach an interface is provided different clock

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domains. Robertson teaches the different clock domain limitation absent from the teachings of Huscroft by disclosing a ring path 24 that operates in two different domains [col 8 lines 52-56] (wherein said network interface device is a plurality of interface devices for decoupling multiple channels, and wherein each parallel clock of said plurality of interface devices is provided with different clock domains such that each of said plurality of interface devices maintains a minimum frequency of operation that provides sufficient headroom to accommodate for signal clock variations and cross-clock domain signalling latency).

36. It would have been obvious to a person of ordinary skill in the art at the time of the invention to compensate for multiple clock domains in Huscroft's invention by trying to minimize latency.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey M. Rutkowski whose telephone number is (571) 270-1215. The examiner can normally be reached on Monday - Friday 7:30-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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